

## PROCEDURE 8 - Personal Protective Equipment

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## Synopsis

This procedure defines the requirements for selection, training, application and usage of personal protective equipment (PPE) at NWS facilities. The PPE covered in this procedure includes eye and face protection, head protection, foot protection, hand protection, protective clothing, and protective shields and barriers. Respiratory protection, hearing protection, and fall protection is covered in separate procedures. This procedure applies to all NWS facilities and work locations where PPE is used and to all NWS employees who use PPE in the performance of their jobs.

### **Initial Implementation Requirements:**

- **Analyze Site Operations versus Procedure Requirements**
  - Perform a Hazard Assessment. (8.3.2)
    - < Review Injury/Accident Data. (8.3.2a(1))
    - < Conduct a walk-through of problem areas to identify sources of hazards. (8.3.2a(2) & 8.3.2a(3)(a-j))
    - < Prepare an analysis of the information gathered from hazard assessment to enable selection of PPE. (8.3.2a(4))
- **Develop/Obtain Documents/Information required for Site**
  - Prepare a Hazard Assessment Form. (8.3.2a(2))
- **Designate Person to Administer PPE Procedure Requirements**
- **Provide Local Training of Site Personnel**
  - PPE Training/Certification (8.3.4g & 8.3.10)
- **Inventory Material/Equipment (Procure as required)**
  - PPE (safety glasses, hard hats, safety shoes, face shields, electrical safety gloves, welding helmets, eyewash stations, body/face rinsing facilities, etc.). (8.5.2e, 8.3.4)

### **Recurring and Annual Task Requirements:**

- < **Perform Inspection/Assessment/Testing**
  - Re-Assess Hazards on site. (8.3.2.5c)
    - < Review Injury/Accident Data. (8.3.2a(1))
    - < Conduct a walk-through of problem areas to identify sources of hazards. (8.3.2a(2) & 8.3.2a(3)(a-j))
    - < Prepare an analysis of the information gathered from hazard assessment to enable selection of PPE. (8.3.2a(4))
- **Review/Update Documentation/Information required for Site**
  - File the Hazard Assessment Form. (8.3.2a(2))
- **Provide Refresher Training of Site Personnel (If Required)**
- **Inspect/Replace/Maintain Material/Equipment**
  - PPE (safety glasses, hard hats, safety shoes, face shields, electrical safety gloves, welding helmets, eyewash stations, body/face rinsing facilities, etc.). (8.5.2e, 8.3.4)

**Personal Protective Equipment Checklist**

<b>Requirements</b>	<b>Reference</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>Comments</b>
Is initial and annual review of this procedure conducted and documented?	8.4.2				
Are all Personal Protective Equipment (PPE) used at this facility appropriate for the intended use?	8.3.1h				
Has a Hazard Assessment been performed to determine the hazards that are present and to determine the appropriate PPE needed?	8.3.2				
Has the Station Manager certified that a Hazard Assessment has been performed with a written "Hazard Assessment Form"?	8.3.2b				
Has a walk-through survey been conducted in accordance with this procedure to identify the hazard sources?	8.3.2a.2 & 8.3.3a-j				
Has an analysis of the hazards found during the Hazard Assessment been prepared to enable proper selection of PPE?	8.3.2a(4)				
Is the selection of appropriate PPE for the employees done by a "Qualified Person"?	8.3.1b				
Are PPE used only when engineering and/or administrative controls cannot be adopted to control the hazard?	8.3.1				
Has the previous injury/accident data been reviewed to help identify problem areas on site?	8.3.2a.1				

Requirements	Reference	YES	NO	N/A	Comments
Are employees provided with and required to use properly selected and fitted PPE?	8.3.1a				
Are all damaged and worn PPE removed from service and disposed of properly?	8.3.1e				
Are all PPE distinctly marked with its manufacturer's identification?	8.3.1g & 8.3.4d				
Are all PPE periodically cleaned and maintained?	8.3.1k & 8.3.4j				
Are all eye and face protection in compliance with this procedure?	8.3.4b				
Are warning signs posted, in accordance with this procedure, in areas where potential eye hazards can occur?	8.3.4e				
Do employees use appropriate eye or face protection when exposed to potential face hazards?	8.3.4a				
Are protective goggles or face shields provided and worn where there is any danger of flying particles or corrosive materials?	8.3.8a.1				
Have all personnel been trained in the purpose and use of eye protection?	8.3.4g				
Are facilities for flushing/rinsing eyes, face and body located within 10 seconds of unobstructed travel within the work area where employees are exposed to injurious corrosive materials?	8.3.4m				

Requirements	Reference	YES	NO	N/A	Comments
Are approved safety glasses required to be worn at all times in areas where there is a risk of eye injuries such as punctures, abrasions, contusions or burns?	8.3.4				
Are employees who need corrective lenses (glasses or contacts) in working environments having harmful exposures, required to wear only approved safety glasses, protective goggles, or use other medically approved precautionary procedures?	8.3.4				
Are all employees wearing hand protection, when there is a potential for injury?	8.3.5a				
Does all protective footwear comply with this procedure?	8.3.6a,b				
Is appropriate foot protection required where there is the risk of foot injuries from hot, corrosive, or poisonous substances, falling objects, crushing or penetrating actions?	8.3.6b				
Are all electrical PPE maintained in safe, reliable condition?	8.3.7a				
Are all requirements concerning insulating blankets, covers, etc being met?	8.3.7b				
Are all employees dressed appropriately when using machinery?	8.3.8a.2 & 3				
Have employees been trained on personal protective equipment procedures?	8.3.10a-d				

Requirements	Reference	YES	NO	N/A	Comments
Are hard hats provided and worn where danger of falling objects exists?	8.3.3				
Are hard hats inspected periodically for damage to the shell and suspension system?	8.3.3				

## 8 PERSONAL PROTECTIVE EQUIPMENT

### 8.1 Purpose And Scope

As part of its goal to provide a safe and healthful workplace, the National Weather Service (NWS) is promulgating this procedure to define the requirements for selection, use and maintenance of personal protective equipment (PPE) at NWS facilities. The PPE covered in this procedure includes eye, face, head, foot and hand protection equipment, protective clothing, and protective shields and barriers. Respiratory, hearing and fall protection equipment are covered in separate procedures. This procedure applies to all NWS facilities and work locations where PPE is used and to all NWS employees who use PPE in the performance of their jobs.

### 8.2 Definitions

Class A Hard Hat. Hard hats which provide impact and penetration resistance and provide electrical protection from low voltage conductors (tested to 2,200 volts).

Class B Hard Hat. Hard hats which provide impact and penetration resistance and provide electrical protection from high voltage conductors (tested to 20,000 volts).

Class C Hard Hat. Hard hats which provide impact and penetration resistance and should not be used around electrical hazards.

Class 0 Gloves. Gloves having the following properties: Maximum use voltage a-c rms-- 1,000 V, Retest voltage a-c rms-- 5,000 V, Retest voltage d-c avg -20,000 V.

Class 00 Gloves. Gloves having the following properties: Maximum use voltage a-c rms-- 500 V, Retest voltage a-c rms - 2,500 V, Retest voltage d-c avg - 10,000 V.

Class 1 Gloves. Gloves having the following properties: Maximum use voltage a-c rms-- 7,500 V, Retest voltage a-c rms-- 10,000 V, Retest voltage d-c - 40,000 V.

Compression. Injury caused when a body part or the entire body is pinched or crushed in or by a machine, heavy object or vehicle.

Face Shield. Secondary eye and face protectors utilized in conjunction with primary protectors, i.e., safety glasses, to protect the wearer's face and eyes from flying objects or chemical hazards.

Field Office. A Field Office may include the following: Weather Forecast Office (WFO), River Forecast Center (RFC), Weather Service Office (WSO), and a Data Collection Office (DCO).

Gloves. Hand protection designed to protect the hands and forearms from various hazards. The specific hazard anticipated will determine which glove to utilize.

Goggles. Protective devices worn over safety glasses and designed to fit snugly around the wearer's eyes to protect against certain hazards, i.e., chemical splashes.

Hard Hat. Headgear also known as a protective helmet. Hard hats are rigid headgear of varying materials designed to protect the wearer's head from falling objects, other impact hazards or electrical hazards.

Hazard Assessment. A survey of work site hazards to determine proper selection of personal protective equipment.

Impact. To impinge or make contact especially forcefully.

Maximum Use Voltage. The a-c voltage (rms) classification of the protective equipment that designates the maximum nominal design voltage of the energized system that may be safely worked.

Operating Unit. For the purpose of this procedure, Operating Unit includes the National Centers for Environmental Prediction (NCEP), National Data Buoy Center (NDBC), NWS Training Center (NWSTC), National Reconditioning Center (NRC), Radar Operations Center (ROC), or the Sterling Research & Development Center (SR&DC).

Personal Protective Equipment (PPE). Devices worn by the worker to protect against hazards in the environment. These devices include but are not limited to the following: protective helmets, spectacles, face shields, gloves and safety shoes.

Qualified Person. An individual who is qualified by appropriate education, training, and experience to select the appropriate personal protective equipment to provide protection against various workplace hazards.

Safety Glasses. A protective eyewear, also known as spectacles, worn to shield the wearer's eyes from a variety of hazards.

Safety Shoes. Protective footwear designed to protect the foot from external forces.

Station Manager. For the purpose of this procedure, the Station Manager shall be either the NWS Regional Director; Directors of Centers under NCEP (Aviation Weather Center, NP6; Storm Prediction Center, NP7; and Tropical Prediction Center, NP8); Directors of the NDBC, NWSTC, and Chiefs of NRC, ROC and SR&DC facilities; or Meteorologist in Charge (MIC), Hydrologist in Charge (HIC), or Official in Charge (OIC).

Welding Helmet. A protective shield for the eyes and face of the wearer to guard against optical radiation and impact. Welding helmets are secondary protection and shall be used only in conjunction with primary protectors determined by the factors of electrode size, arc current, or plate thickness.

### **8.3 Procedure**

8.3.1 Personal protective equipment (PPE) shall be used when engineering and/or administrative controls cannot be adopted to control the hazards of a process or the environment that may cause injury or impairment to employees. PPE shall only be used when other forms of hazard control are not feasible or adequate. The NWS shall

select, and have each affected employee use, the types of PPE that will adequately protect the affected employee.

- a. For those hazards which necessitate the use of PPE, the NWS shall select, and have each affected employee use, the types of PPE that will protect the affected employees. The NWS shall communicate selection decisions to each affected employee and shall select PPE that properly fits each affected employee.
- b. All PPE used at NWS facilities shall be selected for use with assistance of the Safety or Environmental/Safety Focal Point, personnel qualified to perform the specific job requiring PPE and in conjunction with NOAA Regional Safety Manager (RSM), if required.
- c. All PPE used by NWS employees in the performance of their jobs shall be subject to inspection by the Safety or Environmental/Safety Focal Point.
- d. PPE that has been worn to the point that it has reached the end of its useful life, or PPE that is defective or damaged, shall be immediately removed from service and disposed of properly. For example, gloves soaked with grease, oil or other chemicals shall be disposed of in accordance with EPA regulations. (Refer to NWS Occupational Safety and Health Procedure #7, "Hazard Communication Program").
- e. All PPE shall be of safe design and construction for the work to be performed.
- f. All PPE shall be distinctly marked to identify the manufacturer.
- g. All PPE used by the NWS shall comply with all applicable guidelines such as ANSI, ASTM, NFPA, NIOSH, etc.
- h. All protective equipment, including personal protective equipment, shall be provided by the NWS at no cost to employees. NWS employees shall not provide and/or use their own PPE while performing work for the NWS.
- i. In fitting PPE, careful consideration must be given to comfort and fit. Care should be taken to ensure that the right size of the PPE is selected.
- j. PPE shall be kept clean and properly maintained.

8.3.2 Each facility shall perform a hazard assessment of the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of PPE.

- a. In order to assess the need for PPE the following steps should be taken:
  - (1) Review injury/accident data to help identify problem areas.
  - (2) Conduct a walk-through survey of the areas in question. The purpose of the survey is to identify sources of hazards to workers (Attachment

C, "Hazard Assessment Form"). Consideration should be given to the basic hazard categories:

- i Impact
  - ii Penetration
  - iii Compression (roll-over)
  - iv Chemical
  - v Heat
  - vi Harmful dust
  - vii Light (optical) radiation
  - viii Electrical
- (3) During the walk-through survey, the person performing the assessment should observe:
- i Sources of motion; i.e., machinery or processes where any movement of tools, machine elements or particles could exist, or movement of personnel that could result in collision with stationary objects.
  - ii Sources of high temperatures that could result in burns, eye injury or ignition of protective equipment, etc.
  - iii Types of chemical exposures.
  - iv Sources of harmful dust.
  - v Sources of light radiation, i.e., welding, brazing, cutting, furnaces, heat treating, high intensity lights, etc.
  - vi Sources of falling objects or potential for dropping objects.
  - vii Sources of sharp objects which might pierce the feet or cut the hands.
  - viii Sources of rolling or pinching objects which could crush the feet.
  - ix Layout of workplace and location of workers.

- x Any electrical hazards.
- (4) Following the walk-through survey, organize the data and information for use in the assessment of hazards. The objective is to prepare for an analysis of the hazards in the environment to enable proper selection of protective equipment.
- (5) Having gathered and organized the data, an estimate of the potential for injuries shall be made. Each of the basic hazards should be reviewed and a determination made as to the type, level of risk, and seriousness of potential injury from each of the hazards found in the work area. The possibility of exposure to several hazards simultaneously shall be considered.
- b. The Station Manager or his/her designee shall certify that the workplace hazard assessment has been performed with a written "Hazard Assessment Form" that contains the following information: the workplace evaluated; the name and signature of the person certifying that the evaluation has been performed; the date(s) of the hazard assessment.
- c. NWS facilities shall be re-assessed as necessary by identifying and evaluating new equipment and processes, reviewing accident records, and re-evaluating the suitability of previously selected PPE.

#### 8.3.3 Head Protection.

- a. Hard hats shall be worn when there is a potential for injury to the head from falling objects. Some examples include ice falling from a NEXRAD dome, working below other workers where there is a potential for tools or materials to fall; working on, around or below machinery or processes which might cause material or objects to fall; and working on exposed energized conductors. An example would include replacing equipment or performing maintenance on ROHN Towers.
- b. All head protection shall meet the requirements of ANSI Z89.1-1986 or the latest revision. When selecting head protection, knowledge of potential electrical hazards in the work area must be considered.

#### 8.3.4 Eye and Face Protection.

- a. Employees shall use appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, chemical gases or vapors, during electrical "hot" work, or potentially injurious light radiation.
- b. Eye and face protection shall conform to ANSI Z87.1-1989, or the latest revision.

- c. With respect to eye protection, such equipment shall not have an adverse effect on employee performance or otherwise increase the health or safety risk to the employee.
- d. Eye and face PPE shall be distinctly marked to facilitate identification of the manufacturer.
- e. All eye hazard areas shall be posted with appropriate warning signs in accordance with 29 CFR 1910.145.
- f. Eye protection shall be worn by employees, contractors, and visitors passing through eye hazard areas.
- g. All personnel working in eye hazard areas shall be trained on the need for and use of eye protection.
- h. Safety glasses shall have side protection when there is a hazard from flying objects such as grinding, drilling and machining operations. Detachable side protectors are acceptable.
- i. Each employee who typically wears prescription lenses while engaged in operations that involve eye hazards shall wear eye protection that incorporates the prescription in its design or shall wear eye protection that can be worn over the prescription lenses without disturbing the proper position of the prescription lenses or the protective lenses.
- j. Protective eye wear shall be properly maintained in clean and a fully operational condition.
- k. Welding helmets shall have filter lenses that have a shade number appropriate for the work being performed for protection from injurious light radiation (see Attachment A, "Eye Protection Selection Chart" and Attachment B, "Guide for Selection of Proper Shade Number.")
- l. Photochromatic safety glasses (glasses that change color with exposure to sun light) are not permitted to be used for protection against potentially injurious light radiation due to their slow change properties.
- m. Emergency eyewash and or deluge shower facilities shall be provided in all areas where employees can be exposed to corrosive materials (e.g., hydrogen generators, battery charging areas). Note: Per ANSI Z3581-1998, eye/face wash units shall be in accessible locations that require no more than 10 seconds to reach.

**8.3.5 Hand Protection.**

- a. Hand protection (gloves) shall be worn when there is a potential for injury to the hands from exposure to hazards such as but not limited to those from skin

absorption of harmful substances, severe cuts or lacerations, severe abrasions, punctures, chemical burns, thermal burns and harmful temperature extremes.

- b. Attachment F, "Glove Selection Table" is a generic glove selection table which can be referenced when selecting hand protection for different situations.

#### 8.3.6 Foot Protection.

- a. Protective footwear shall be worn in areas where there is a danger of falling or rolling objects, or objects piercing the sole such as but not limited to:
  - (1) Routinely lifting or moving heavy or cumbersome objects or materials.
  - (2) Using landscaping devices, i.e., lawnmowers, trimmers.
  - (3) Working in areas where forklifts or powered vehicles are used.
- b. Non-conductive foot protection shall be worn where the employee's feet are exposed to electrical hazards.
- c. Protective footwear shall meet the requirements of ANSI Z41-1991 or the latest revision.

<p><b>NOTE:</b> Electronic Technicians and Sector Facilities Technicians shall be provided with nonconductive safety shoes. At least two pairs of toe guards shall be provided at each office to be used by other personnel as required.</p>
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#### 8.3.7 Electrical Protective Devices.

- a. Electrical protective equipment shall be maintained in a safe, reliable condition.
- b. The following specific requirements apply to insulating blankets, covers, line hose, gloves, and sleeves made of rubber:
  - (1) Maximum use voltages shall conform to those listed in Attachment D, "Rubber Insulating Equipment Voltage Requirements."
  - (2) Insulating equipment shall be inspected by a qualified person for damage before each day's use and immediately following any incident that can reasonably be suspected of having caused damage. Insulating gloves shall be given an air test, along with the inspection.
  - (3) Insulating equipment with any of the following defects may not be used:
    - i A hole, tear, puncture, or cut.

- ii Ozone cutting or ozone checking (the cutting action produced by ozone on rubber under mechanical stress resulting in a series of interlacing cracks).
  - iii An embedded foreign object.
  - iv Any of the following texture changes: swelling, softening, hardening, or becoming sticky or inelastic.
  - v Any other defect that damages the insulating properties.
- (4) Insulating equipment found to have other defects that might affect its insulating properties shall be removed from service and returned for testing.
  - (5) Insulating equipment shall be cleaned as needed to remove foreign substances.
  - (6) Insulating equipment shall be stored in such a location and in such a manner as to protect it from light, temperature extremes, excessive humidity, ozone, and other injurious substances and conditions.
  - (7) Protector gloves shall be worn over insulating gloves, except as follows:
    - i Protector gloves should not be used with Class 0 gloves, under limited-use conditions, where small equipment and parts manipulation necessitate unusually high finger dexterity.

<p><b>NOTE:</b> Extra care is needed in the visual examination of the glove and in the avoidance of handling sharp objects.</p>
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- ii Any other class of glove may be used for similar work without protector gloves if the employer can demonstrate that the possibility of physical damage to the gloves is small and if the class of glove is one class higher than that required for the voltage involved. Insulating gloves that have been used without protector gloves may not be used at their rated voltage until they have been tested.
- (8) Electrical protective equipment shall be subjected to periodic electrical tests at a certified testing facility. For equipment that is in use, testing shall be conducted every six months (e.g., rubber insulating gloves) or 12 months (e.g., rubber insulating blankets or sleeves). Equipment in storage or not in use shall be tested annually.

- (9) Insulating equipment failing to pass inspections or electrical tests may not be used by employees, except as follows:
  - i Rubber insulating line hose may be used in shorter lengths with the defective portion cut off.
  - ii Rubber insulating blankets may be repaired using a compatible patch that results in physical and electrical properties equal to those of the blanket.
  - iii Rubber insulating blankets may be salvaged by severing the defective area from the undamaged portion of the blanket. The resulting undamaged area may not be smaller than 22 inches by 22 inches (560 mm by 560 mm) for Class 1, 2, 3, and 4 blankets.
  - iv Rubber insulating gloves and sleeves with minor physical defects, such as small cuts, tears, or punctures, may be repaired by the application of a compatible patch. Also, rubber insulating gloves and sleeves with minor surface blemishes may be repaired with a compatible liquid compound. The patched area shall have electrical and physical properties equal to those of the surrounding material. Repairs to gloves are permitted only in the area between the wrist and the reinforced edge of the opening.
- (10) Repaired insulating equipment shall be re-tested by a certified testing facility before it may be used by employees.
- (11) The Safety or Environmental/Safety Focal Point shall maintain equipment test or inspection records. The records shall identify the equipment that passed the test or inspection and the date of the action.

**8.3.8 Shop Safety**

- a. Safety glasses with side shields shall be used by each machine operator. Goggles shall be worn when grinding. Contact lenses are not permitted to be used in areas where welding or cutting operations are taking place.
- b. The use of close-fitting garments by machine operators and service personnel is required. Loose clothing such as ties, dangling cuffs, jewelry and lab coats, is prohibited.
- c. Personnel with long hair shall wear close-fitting, stiff-brim caps, hats or hair nets while working around moving machine parts.
- d. Gloves shall not be worn when there is a possibility that the gloves will become entangled in a machine or tool, creating an additional hazard.

- e. A leather glove or glove rated for the service shall be used when working in areas with hot surfaces. While grinding, leather gloves shall be worn unless it can be shown that the gloves create a greater hazard. Welding or cutting operations require the use of welding gloves.
- f. Welding helmets shall be used during all arc welding or arc cutting operations. Helpers or attendants shall also wear proper eye protection. Safety glasses or goggles shall be worn in conjunction with welding helmets. (See Attachment B, "Guide for the Selection of Proper Shade Numbers").

**8.3.9 Construction Sites**

At all construction sites, hard hats, safety shoes and safety glasses are required for all personnel, both NWS and contractor. Hard hats designed to reduce electrical shock hazard shall be worn when exposed electrical conductors could contact the head. Other PPE (respirators, gloves, etc.) are dependent upon the type of construction being performed.

**8.3.10 Training**

- a. PPE training shall be provided for each employee required to use PPE by this procedure.
- b. The content of the PPE training shall consist of but not be limited to the following:
  - (1) When the PPE is necessary.
  - (2) What PPE is necessary.
  - (3) How to properly put on, take off, adjust, and wear the PPE.
  - (4) The limitations of the PPE.
  - (5) The proper care, maintenance, useful life and disposal of the PPE.
  - (6) Circumstances where re-training is required include, but are not limited to, situations where:
    - i Changes in the workplace render previous training obsolete.
    - ii Changes in the types of PPE to be used render previous training obsolete.
    - iii Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill.

- c. Personnel having received PPE training shall demonstrate an understanding of the training and the ability to use the PPE properly before performing any work requiring the use of the PPE.
- d. A written certification shall be generated by the Station Manager or his/her designee that states the name of the employee trained, the date of the training and the PPE for which the employee was trained. (See Attachment E, "NWS PPE Training Certification Form").

## **8.4 Quality Control**

### **8.4.1 Regional or Operating Unit Environmental/Safety Coordinators**

- a. Shall perform an annual assessment of the regional headquarters facilities or operating unit to monitor and promote compliance with the requirements of this procedure.
- b. Shall perform assessments or designate personnel to perform assessments of all field offices to monitor and promote compliance with the requirements of this procedure every two years.

### **8.4.2 Station Manager**

Shall review, or delegate review, of this procedure on an annual basis to ensure that the facility is complying with its requirements. Confirmation of this review shall be forwarded to the Regional or Operating Unit Environmental/Safety Coordinator.

### **8.4.3 NWS Headquarters (NWSH)**

- a. The NWS Safety Office shall perform an annual assessment of the NWSH facilities to ensure that the facilities are in compliance with this procedure.
- b. The NWSH Safety Office shall periodically perform an assessment of the regional headquarters and field offices to ensure compliance with this procedure. The frequency of these regional and field office assessments shall be determined by the NWSH Safety Office.
- c. Requests for clarification concerning this procedure shall be directed to the NWSH Safety Office.

## **8.5 Responsibilities**

### **8.5.1 Regional or Operating Unit Environmental/Safety Coordinators\***

Shall monitor and coordinate to promote compliance with the requirements of this procedure for the regional headquarters, and field offices or operating units.

8.5.2 Station Manager\*

- a. Shall have oversight over the implementation of this procedure, and ensure that the requirements of this procedure are followed by individuals at the NWS facility.
- b. Shall ensure that a PPE hazard assessment has been performed as required by this procedure.
- c. Shall ensure that NWS personnel wear the PPE required for the task they are performing.
- d. Shall ensure that NWS personnel are properly trained to wear the PPE required for a particular task.
- e. Shall ensure that initial and periodic inventory of PPE is accomplished and adequate stock is maintained.

8.5.3 Safety or Environmental/Safety Focal Point\*

Shall ensure that any responsibilities delegated to them by the Station Manager are implemented in accordance with the requirements of this procedure.

8.5.4 Employees

- a. Individual employees affected by this procedure are required to read, understand and comply with the requirements of this procedure.
- b. Report unsafe or unhealthful conditions and practices to their supervisor or safety focal point.

<p><b>NOTE:</b>      * - Reference NWS PD 50-11 for complete list of responsibilities <a href="http://www.nws.noaa.gov/directives/050/pd05011a.pdf">http://www.nws.noaa.gov/directives/050/pd05011a.pdf</a></p>
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**8.6 References**

Incorporated References. The following list of references is incorporated as a whole or in part into this procedure. These references can provide additional explanation or guidance for the implementation of this procedure.

- 8.6.1 American National Standards Institute, ANSI Z89.1-1986, "American National Standard for Personal Protection-Protective Headwear for Industrial Workers-Requirements".
- 8.6.2 American National Standards Institute, ANSI Z87.1-1989, "American National Standard Practice for Occupational and Educational Eye and Face Protection."
- 8.6.3 American National Standards Institute, ANSI Z41-1991, "American National Standard for Personal Protection-Protective Footwear."

- 8.6.4 American National Standards Institute, ANSI Z358.1-1998, "Emergency Eyewash and Shower Equipment."
- 8.6.5 Department of Commerce (DOC) Safety Manual.
- 8.6.6 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.95, "Occupational Noise Exposure."
- 8.6.7 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910.145, "Specifications for Accident Prevention Signs and Tags."
- 8.6.8 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR Part 1910 Subpart I, "Personal Protective Equipment."
- 8.6.9 U.S. Department of Labor, Occupational Safety and Health Administration, 29 CFR 1910, Subpart Q, "Welding, Cutting and Brazing."
- 8.6.10 NWS Occupational Safety and Health Procedure #7, "Hazard Communication Program."

## **8.7 Attachments**

Attachment A. Eye Protectors Selection Chart, ANSI Standard Z87.1-1989

Attachment B. Guide for Selection of Proper Shade Number, 29 CFR 1910.252

Attachment C. Hazard Assessment Form

Attachment D. Rubber Insulating Equipment Voltage Requirements

Attachment E. NWS PPE Training Certification Form

Attachment F. Glove Selection Table

Attachment G. Hazard Assessment Forms for PPE (WFO Springfield, MO)



## ATTACHMENT A

## Eye Protectors Selection Chart

(ANSI Z87.1-1989)

(OSHA 29 CFR 1910.133)

Operations	Electrode Size 1/32 in. (mm)	Arc Current	Minimum Protective Shade	Shade* Number
Shielded metal arc welding	<3 (2.5)	<60	7	-
	3-5 (2.5-4)	60-160	8	10
	5-8 (4-6.4)	160-250	10	12
	>8 (6.4)	250-550	11	14
Gas metal arc welding and flux cored arc welding		<60	7	-
		60-160	10	11
		160-250	10	12
		250-550	10	14
Gas tungsten arc Welding		<50	8	10
		50-100	8	12
		150-500	10	14
Air Carbon Arc cutting	(Light)	<500	10	12
	(Heavy)	500-1,000	11	14
Plasma arc welding		<20	6	6 to 8
		20-100	8	10
		100-400	10	12
		400-800	11	14
Plasma arc cutting	(Light)**	<300	8	9
	(Medium)**	300-400	9	12
	(Heavy)**	400-800	10	14
Torch brazing		-	3 or 4	-

<b>Operations</b>	<b>Electrode Size 1/32 in. (mm)</b>	<b>Arc Current</b>	<b>Minimum Protective Shade</b>	<b>Shade* Number</b>
Torch soldering		-	2	-
Carbon arc welding		-	14	-

## ATTACHMENT B

## Guide for Selection of Proper Shade Number

(29 CFR 1910.252)

	Plate Thickness		Shade Number*
	Inches	mm	
Gas Welding			
Light	<1/8	<3.2	4 or 5
Medium	1/8-1/2	3.2-12.7	5 or 6
Heavy	>1/2	>12.7	6 or 8
Oxygen Cutting			
Light	<1	<25	3 or 5
Medium	1-6	25-150	4 or 5
Heavy	>6	>150	5 or 6

- \* As a rule of thumb, start with a shade that is too dark to see the weld zone. Then go to a lighter shade which gives sufficient view of the weld zone without going below the minimum. In oxyfuel gas welding or cutting where the torch produces a high yellow light, it is desirable to use a filter lens that absorbs the yellow or sodium line in the visible light of the (spectrum) operation.
- \*\* These values apply where the actual arc is clearly seen. Experience has shown that lighter filters may be used when the arc is hidden by the workpiece.

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## ATTACHMENT C

**Hazard Assessment Form for Personal Protective Equipment**

Location/Operation: \_\_\_\_\_ Date: \_\_\_\_\_

Type of Hazard	Source of Hazard	Injury Potential			PPE Recommended	Comments
		High	Med	Low		
Temp. Extremes						
Chemical Exposure						
Harmful Dusts						
Light Radiation						
Falling Objects						
Sharp Objects						
Nip Points						
Flying Objects						
Electrical						
Fire/Explosion						

Assessment Completed By: \_\_\_\_\_

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## ATTACHMENT D

## Rubber Insulating Equipment Voltage Requirements

Class of Equipment	Maximum use voltage (1)	Retest voltage (2)	Retest voltage (2)
	a-c-rms	a-c-rms	d-c-avg
0	1,000	5,000	20,000
1	7,500	10,000	40,000
2	17,000	20,000	50,000
3	26,500	30,000	60,000
4	36,000	40,000	70,000

**Footnote (1):** The maximum use voltage is the a-c voltage (rms) classification of the protective equipment which designates the maximum nominal design voltage of the energized system that may be safely worked.

**Footnote (2):** The proof-test voltage shall be applied for at least one minute, but no more than three minutes.

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**ATTACHMENT E**  
**NWS PPE Training Certification Form**

**Location:** \_\_\_\_\_

**Course:** \_\_\_\_\_

**Date of Training:** \_\_\_\_\_

**Pursuant to the National Weather Service Occupational Safety & Health Procedure**

**Number \_\_\_\_\_ and title \_\_\_\_\_ I certify I have received training on the**

**following personal protective equipment**

**(PPE):** \_\_\_\_\_

**Printed Name of Employee:** \_\_\_\_\_

**Signature of Employee:** \_\_\_\_\_

**Signature of Instructor :** \_\_\_\_\_

**Distribution:**

**Employee's Supervisor**

**Safety or Environmental/Safety Focal Point**

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## ATTACHMENT F

## Glove Selection Table

## Resistance of Chemicals of Common Glove Materials

E = Excellent	G = Good	F = Fair	P = Poor	
Chemical	Natural Rubber	Neoprene	Nitrile	Vinyl
Acetaldehyde	G	G	E	G
Acetic acid	E	E	E	E
Acetone	G	G	G	F
Acrylonitrile	P	G	-	F
Ammonium hydroxide (sat)	G	E	E	E
Aniline	F	G	E	G
Benzaldehyde	F	F	E	G
Benzene <sup>a</sup>	P	F	G	F
Benzyl chloride <sup>a</sup>	F	P	G	P
Bromine	G	G	-	G
Butane	P	E	-	P
Butyraldehyde	P	G	-	G
Calcium hypochlorite	P	G	G	G
Carbon disulfide	P	P	G	F
Carbon tetrachloride <sup>a</sup>	P	F	G	F
Chlorine	G	G	-	G
Chloroacetone	F	E	-	P
Chloroform <sup>a</sup>	P	F	G	P
Chromic acid	P	F	F	E

Chemical	Natural Rubber	Neoprene	Nitrile	Vinyl
Cyclohexane	F	E	-	P
Dibenzyl ether	F	G	-	P
Dibutyl phthalate	F	G	-	P
Diethanolamine	F	E	-	E
Diethyl ether	F	G	E	P
Dimethyl sulfoxide <sup>b</sup>	-	-	-	-
Ethyl acetate	F	G	G	F
Ethylene dichloride <sup>a</sup>	P	F	G	P
Ethylene glycol	G	G	E	E
Ethylene trichloride <sup>a</sup>	P	P	-	P
Fluorine	G	G	-	G
Formaldehyde	G	E	E	E
Formic acid	G	E	E	E
Glycerol	G	G	E	E
Hexane	P	E	-	P
Hydrobromic acid (40%)	G	E	-	E
Hydrochloric acid (conc)	G	G	G	E
Hydrofluoric acid (30%)	G	G	G	E
Hydrogen peroxide	G	G	G	E
Iodine	G	G	-	G
Methylamine	G	G	E	E
Methyl cellosolve	F	E	-	P
Methyl chloride <sup>a</sup>	P	E	-	P
Methyl ethyl ketone	F	G	G	P
Methylene chloride <sup>a</sup>	F	F	G	F

Chemical	Natural Rubber	Neoprene	Nitrile	Vinyl
Monoethanolamine	F	E	-	E
Morpholine	F	E	-	E
Naphthalene <sup>a</sup>	G	G	E	G
Nitric acid (conc)	P	P	P	G
Perchloric acid	F	G	F	E
Phenol	G	E	-	E
Phosphoric acid	G	E	-	E
Potassium hydroxide (sat)	G	G	G	E
Propylene dichloride <sup>a</sup>	P	F	-	P
Sodium hydroxide	G	G	G	E
Sodium hypochlorite	G	P	F	G
Sulfuric acid (conc)	G	G	F	G
Toluene <sup>a</sup>	P	F	G	F
Trichloroethylene <sup>a</sup>	P	F	G	F
Tricresyl phosphate	P	F	-	F
Triethanolamine	F	E	E	E
Trinitrotoluene	P	E	-	P

<sup>a</sup> Aromatic and halogenated hydrocarbons will attack all types of natural and synthetic glove materials. Should swelling occur, the user should change to fresh gloves and allow the swollen gloves to dry and return to normal.

<sup>b</sup> No data on the resistance to dimethyl sulfoxide of natural rubber, neoprene, nitrile rubber, or vinyl materials are available; the manufacturer of the substance recommends the use of butyl rubber gloves.

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**ATTACHMENT G**

**Hazard Assessment Forms for PPE (WFO Springfield, MO)**

**Table of Contents**

**Attachment G-1. Extreme Weather Activities**

**Attachment G-2. Upper Air**

**Attachment G-3. Work at Heights**

**Attachment G-4. Soldering**

**Attachment G-5. Equipment Maintenance**

**Attachment G-6. Battery Charging and Replacement**

## ATTACHMENT G-1

## Hazard Assessment Form for Personal Protection Equipment

Location/Operation Extreme Weather Activities

Date: \_\_\_\_\_

Type of Hazard	Source of Hazard	Potential of Injury	Recommend PPE	Comments
Temperature Extremes	Weather	9 High 9 X Med 9 Low	Yes	Rain Gear, Insulated Overalls, Insulated Boots
Chemical Exposure		9 High 9 Med 9 Low		
Harmful Dusts		9 High 9 Med 9 Low		
Light Radiation		9 High 9 Med 9 Low		
Falling Objects		9 High 9 Med 9 Low		
Sharp Objects		9 High 9 Med 9 Low		
Nip Points		9 High 9 Med 9 Low		
Flying Objects		9 High 9 Med 9 Low		
Electrical		9 High 9 Med 9 Low		

Assessment by: \_\_\_\_\_

## ATTACHMENT G-2

## Hazard Assessment Form for Personal Protection Equipment

Location/Operation Upper Air Date: \_\_\_\_\_

Type of Hazard	Source of Hazard	Potential of Injury	Recommend PPE	Comments
Temperature Extremes		9 High 9 Med 9 X Low		
Chemical Exposure		9 High 9 Med 9 Low		
Harmful Dusts		9 High 9 Med 9 Low		
Light Radiation		9 High 9 Med 9 Low		
Falling Objects		9 High 9 Med 9 Low		
Sharp Objects		9 High 9 Med 9 Low		
Nip Points		9 High 9 Med 9 Low		
Flying Objects	Ruptured Balloon Fragments	9 High 9 Med 9 X Low	Yes	Safety Glasses or Safety Goggles
Electrical		9 High 9 Med 9 Low		

Assessment by: \_\_\_\_\_

## ATTACHMENT G-3

## Hazard Assessment Form for Personal Protection Equipment

Location/Operation Work at Heights Date: \_\_\_\_\_

Type of Hazard	Source of Hazard	Potential of Injury	Recommend PPE	Comments
Temperature Extremes		9 High 9 Med 9 Low		
Chemical Exposure		9 High 9 Med 9 Low		
Harmful Dusts		9 High 9 Med 9 Low		
Light Radiation		9 High 9 Med 9 Low		
Falling Objects	Falling Debris, Tools, etc.	9 High 9 X Med 9 Low	Yes	Hard hat
Sharp Objects	Sharp aspects of structures or equipment being climbed	9 High 9 X Med 9 Low	Yes	Gloves
Nip Points		9 High 9 Med 9 Low		
Flying Objects		9 High 9 X Med 9 Low	Yes	Safety Glasses or Safety Goggles
Electrical		9 High 9 Med 9 Low		

Assessment by: \_\_\_\_\_

## ATTACHMENT G-4

## Hazard Assessment Form for Personal Protection Equipment

Location/Operation Soldering Date: \_\_\_\_\_

Type of Hazard	Source of Hazard	Potential of Injury	Recommend PPE	Comments
Temperature Extremes	Hot Iron	9 High 9 Med 9 X Low	No	
Chemical Exposure		9 High 9 Med 9 Low		
Harmful Dusts	Lead and Tin Fume	9 High 9 Med 9 X Low	No	Exposure Potential low in reference to PEL
Light Radiation		9 High 9 Med 9 Low		
Falling Objects		9 High 9 Med 9 Low		
Sharp Objects		9 High 9 Med 9 Low		
Nip Points		9 High 9 Med 9 Low		
Flying Objects	Splattering of hot solder	9 High 9 X Med 9 Low	Yes	Safety Glasses or Safety Goggles
Electrical		9 High 9 Med 9 Low		

Assessment by: \_\_\_\_\_

## ATTACHMENT G-5

## Hazard Assessment Form for Personal Protection Equipment

Location/Operation Equipment Maintenance Date: \_\_\_\_\_

Type of Hazard	Source of Hazard	Potential of Injury	Recommend PPE	Comments
Temperature Extremes		9 High 9 Med 9 X Low		
Chemical Exposure	Lubricants and Solvents	9 High 9 Med 9 X Low	Yes	Gloves, and Safety Glasses or Safety Goggles
Harmful Dusts		9 High 9 Med 9 Low		
Light Radiation		9 High 9 Med 9 Low		
Falling Objects	Falling materials or tools	9 High 9 X Med 9 Low	Yes	Hard hat
Sharp Objects		9 High 9 Med 9 Low		
Nip Points		9 High 9 Med 9 Low		
Flying Objects	Scrap from use of power or hand tools	9 High 9 X Med 9 Low	Yes	Safety Glasses or Safety Goggles
Electrical	High and Medium Voltage	9 High 9 X Med 9 Low	Yes	Rubber Gloves Boots without metal eyelets, fiberglass toes

**Assessment by:**\_\_\_\_\_

## ATTACHMENT G-6

## Hazard Assessment Form for Personal Protection Equipment

Location/Operation Battery Charging and Replacement

Date: \_\_\_\_\_

Type of Hazard	Source of Hazard	Potential of Injury	Recommend PPE	Comments
Temperature Extremes		9 High 9 Med 9 Low		
Chemical Exposure	Lubricants and Solvents	9 High 9 X Med 9 Low	Yes	Chemical Resistant Gloves, Chemical Resistant Apron and Safety Glasses or Safety Goggles
Harmful Dusts		9 High 9 Med 9 Low		
Light Radiation		9 High 9 Med 9 Low		
Falling Objects	Falling materials or tools	9 High 9 Med 9 Low		
Sharp Objects		9 High 9 Med 9 Low		
Nip Points		9 High 9 Med 9 Low		
Flying Objects	Scrap from use of power or hand tools	9 High 9 Med 9 Low	Yes	
Electrical	High and Medium Voltage	9 High 9 Med 9 Low	Yes	

Assessment by: \_\_\_\_\_